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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/040,166
Filing Date	December 31, 2001
First Named Inventor	James, David V.
Art Unit	2666
Examiner Name	Duong, Frank
Total Number of Pages in This Submission: 66	Attorney Docket Number: P2092D/1612US

ENCLOSURES *(Check all that apply)*

- [X] Fee Transmittal Form
  - [X] Fee Attached
- [ ] Amendment/Reply
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  - [ ] Affidavits/declaration(s)
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- [ ] Certified Copy of Priority Document(s)
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Remarks

Appeal Brief submitted in triplicate.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Nancy R. Simon, Reg. No. 36,930
Signature	Nancy R. Simon
Date	September 28, 2004

CERTIFICATE OF TRANSMISSION/MAILING

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PTO/SB/17 (10-03)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 330.00

Complete if Known	
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First Named Inventor	James, David V.
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METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 50-1443

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		X =
Independent Claims		- 3** =		X =
Multiple Dependent				=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330.00
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 330.00

SUBMITTED BY

(Complete *(if applicable)*)

Name (Print/Type)	Nancy R. Simon	*Registration No. (Attorney/Agent)*	36,930	*Telephone*	408-873-3941
Signature	Nancy R. Simon			*Date*	September 28, 2004

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AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPELLANTS:	David V. James and William Rivard
SERIAL NO:	10/040,166
FILING DATE:	December 31, 2001
TITLE:	Apparatus And Method For Inter-Node Communication
EXAMINER:	Frank Duong
ART UNIT:	2666
ATTORNEY DKT:	P2092D/1612US

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This appeal is from the final office action dated March 29, 2004, finally rejecting claims 1-34, which are reproduced as an Appendix to this brief. Please charge any fees necessary for prosecution of the present application to deposit account no. 50-1443.

10/05/2004 HVUONG1 00000050 10040166

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37 C.F.R. 1.8

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Nancy R. Simon

Nancy R. Simon

Real Party In Interest

The real party in interest is the assignee, Apple Computer, Inc. of Cupertino, California.

Related Appeals And Interferences

There are currently no related appeal or interference proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision in the present Appeal.

Related Applications

The present application is a divisional of United States patent application 09/040,149, filed on March 17, 1998 and now abandoned.

Status Of Claims

Claims 1-34 remain pending in the present application. All claims have been finally rejected and are on appeal. Claims 1-26 stand rejected under 35 USC § 102(e) as being anticipated by Perino et al. (hereinafter "Perino"). Claims 27-34 stand rejected under 35 USC § 103(a) as being unpatentable over Perino.

Status Of Amendments

All amendments have been entered. An amendment after final action has not been submitted.

Summary Of Invention

Referring to FIG. 3, a number of signals (206, 208, 210) in a first set of signals are selectively grouped and encoded into a second set of signals. The second set of signals are then transmitted from a first node (302) to a second node (304). The second node (304) decodes the second set of signals to obtain the first set of signals (206, 208, 210) (page 12, line 1 to page 13, line 8; page 13, lines 26-30). The encoding scheme may be selected or switched at any point during signal transmission by communicating the selection or switch to the second node (304) (page 15, line 25 to page16, line 11). In one embodiment in accordance with the invention, the encoding scheme may encode the signals such that a difference between a total number of unencoded data values (e.g. bits) and a total number of encoded data values is a fraction of the total number of unencoded data values (602 in FIG. 6). In other embodiments in accordance with the invention, the encoding scheme may encode the signals such that an equal number (604), a nearly equal number (606), a constant number (608), or a nearly constant number (610) of logic 1's and 0's are transmitted to the second node (304) (page 15, line 25 to page 16, line 10).

Issues

(1) Whether claims 1-26 are anticipated by Perino.

(2) Whether claims 27-34 are obvious over Perino.

Grouping Of Claims

Claims 1-8, 15-21, and 27-30 stand and fall together. Claims 9-14, 22-26, and 31-34 stand and fall together.

Argument

Issue 1 - Whether claims 1-26 are anticipated by Perino

In order for a reference to anticipate an invention, each and every element of the claimed invention must be found in a single reference. Applicant respectfully submits Perino does not anticipate Applicant's claimed invention because Perino does not teach or disclose each and every element of the claimed invention.

Independent claims 1 and 15 each recite, in relevant parts, "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals", "transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly an equal number of logic 1's and logic 0's", and "transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations." Independent claims 9 and 22, each state, in relevant parts, "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals", "transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly an equal number of logic 1's and logic 0's", and "transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations." Nothing found in Perino teaches each and every element claimed in Appellant's independent claims.

The Examiner argues input 108 in figure 2, input pins IN_0-IN_4 in figure 4, or Table 3 in Perino teach "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals." Applicant respectfully disagrees with the Examiner. Input 108 in Figure 2 simply illustrates an input signal into translator 100. Figure 2 and its corresponding description do not teach

dividing input 108 into groups, where each group contains a portion of the unencoded signals.

Inputs IN_0-IN_4 in figure 4 are received by translator (132), which responsively generates six different control signals, three of which are provided to the first driver (133) and the remaining three to the second driver (134). Perino does not teach dividing inputs IN_0-IN_4 into groups, where each group includes a portion of the input signals.

And finally, Table 3 illustrates the signals input into translator (100) (column 1 - code) and transmitted to driver 102 (column 2 - control signals). The control signals control the position of switches 118-122 in figure 3A. The switch positions are controlled such that the signal levels shown in column 3 are provided on conductors 112a-112c. The permutations of the three signal levels are different for each symbol, and the sum of the currents flowing on all of the conductors is constant and equal (i.e., 0i + 1i + 2i = 3i)(see col. 3, lines 45-63). These signal levels are received by detector 104 and converted into signals corresponding to the control signals of column 2. Figures 2, 3A, and 3B, and their corresponding descriptions, however, do not teach "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals."

Moreover, nothing in Perino teaches transforming each group comprised of a portion of the unencoded signals into a group of encoded signals such that each group of encoded signals has nearly an equal number or nearly a constant number of logic 1's and logic 0's. Therefore, based on the foregoing, Appellant respectfully submits Perino does not teach or disclose each and every element in Appellant's independent claims.

Dependent claims 2-8, 10-14, 16-21, and 23-26 are believed to add novel and patentable subject matter to their respective independent claims.

Dependent claims 2 and 10 each recite "... each group of unencoded signals includes an equal number of signals." Nothing found in Perino teaches dividing a plurality of unencoded signals into groups, where each group includes an equal number of signals.

Dependent claims 11 and 25 each state "...transforming a group of unencoded signals into a group of encoded signals having a constant number of logic 1's and logic 0's using one of the selected at least one encoding scheme." Perino does not teach this aspect of the claimed invention.

Dependent claims 3 and 18 each recite "...transforming a group of unencoded signals into a group of encoded signals having an equal number of logic 1's and logic 0's using one of the selected at least one encoding scheme. Nothing found in Perino teaches this aspect of the claimed invention.

With respect to dependent claims 4, 5, 19, and 20, Perino does not teach "transforming a group of six unencoded signals into a group of eight encoded signals" or "transforming a group of four unencoded signals into a group of six encoded signals."

Dependent claims 6, 12, 16, and 23 each recite "selecting at least one encoding scheme prior to ... transforming each group of unencoded signals into a group of encoded signals." Perino does not teach this aspect of the claimed invention.

Dependent claims 7, 13, 17, and 24 each state the encoding scheme "transforms a group of unencoded signals to encoded signals such that a difference between a total number of unencoded data values and a total number of encoded data values is a fraction of the total number of unencoded data values." Nothing found in Perino teaches this aspect of the claimed invention.

Dependent claims 8, 14, 21, and 26 each recite "...transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals." Since Perino does not divide a plurality of unencoded signals into groups and then transform the groups of unencoded signals into encoded signals, Perino does not teach transforming the groups of encoded signals back into the plurality of unencoded signals.

For at least the forgoing reasons, Claims 1-26 are not anticipated by Perino and the rejection of these claims under 35 USC § 102(e) should be reversed.

Issue 2 - Whether claims 27-34 are obvious over Perino

The Manual of Patent Examining Procedure (MPEP) states the following in Section 2142:

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Applicant submits that claims 27-34 are not rendered obvious by Perino because the prior art reference does not meet the three criteria listed above. The argument below, however, will focus on the third criteria.

Independent claims 27 and 31 each recite "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals". As discussed in conjunction with Issue 1, Perino does not teach or suggest dividing a plurality of unencoded signals into groups, where each group includes a portion of the unencoded signals. And nothing found in Perino suggests this aspect of the claimed invention.

Moreover, Perino does not teach or suggest "transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly an equal number of logic 1's and logic 0's" and "transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations", as recited in claim 27.

Perino also does not teach or suggest "transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly a constant number of logic 1's and logic 0's" and "transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations", as recited in claim 31.

Section 2143.03 in the MPEP states when "an independent claim is nonobvious under 35 USC 103, then any claim depending therefrom is nonobvious." As discussed above, independent claims 27 and 31 are not obvious in view of Perino. Consequently, Applicant submits dependent claims 28-30 and 32-34 are also not obvious in view of Perino.

Dependent claims 28 and 32 each recite "...selecting at least one encoding scheme prior to transforming each group of unencoded signals into a group of encoded signals." As discussed earlier, Perino does not teach or suggest "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals" and "transforming each group of unencoded signals into a group of encoded signals." Perino therefore does not teach "selecting at least one encoding scheme prior to transforming each group of unencoded signals into a group of encoded signals."

Dependent claim 29 states "...transforming a group of unencoded signals into a group of encoded signals having an equal number of logic 1's and logic 0's using one of the selected at least one encoding scheme." Perino does not teach or suggest "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals" and "transforming each group of unencoded signals into a group of encoded signals." And Perino does not teach "transforming a group of unencoded signals into a group of encoded signals having an

equal number of logic 1's and logic 0's using one of the selected at least one encoding scheme."

Dependent claim 30 recites "..."...transforming a group of unencoded signals into a group of encoded signals having a constant number of logic 1's and logic 0's using one of the selected at least one encoding scheme." Perino does not teach or suggest "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals" and "transforming each group of unencoded signals into a group of encoded signals." Perino therefore does not teach "transforming a group of unencoded signals into a group of encoded signals having a constant number of logic 1's and logic 0's using one of the selected at least one encoding scheme."

Dependent claims 30 and 34 each state "...transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals." Perino does not teach or suggest "dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals" and "transforming each group of unencoded signals into a group of encoded signals." Consequently, Perino does not teach "transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals."

For at least the forgoing reasons, Claims 27-34 are not obvious in view of Perino, and the rejection of these claims under 35 USC § 103(a). should be reversed.

Appellant respectfully requests the rejection of claims 1-34 be REVERSED.

Respectfully submitted,

Date: September 28, 2004

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Appendix Of Claims

Claim 1. A method for inter-node communication, comprising the steps of:

dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals;

transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly an equal number of logic 1's and logic 0's; and

transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations.

Claim 2. The method of claim 1 wherein each group of unencoded signals includes an equal number of signals.

Claim 3. The method of claim 6 wherein the step of transforming each group of unencoded signals into a group of encoded signals comprises the step of transforming a group of unencoded signals into a group of encoded signals having an equal number of logic 1's and logic 0's using one of the selected at least one encoding scheme.

Claim 4. The method of claim 7 wherein the step of transforming each group of unencoded signals into a group of encoded signals comprises the step of transforming a group of six unencoded signals into a group of eight encoded signals.

Claim 5. The method of claim 7 wherein the step of transforming each group of unencoded signals into a group of encoded signals comprises the step of transforming a group of four unencoded signals into a group of six encoded signals.

Claim 6. The method of claim 1 further comprising the step of selecting at least one encoding scheme prior to performing the step of transforming each group of unencoded signals into a group of encoded signals.

Claim 7. The method of claim 6 wherein the at least one encoding scheme transforms a group of unencoded signals to encoded signals such that a difference between a total number of unencoded data values and a total number of encoded data values is a fraction of the total number of unencoded data values.

Claim 8. The method of claim 1 further comprising the step of transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals.

Claim 9. A method for inter-node communication, comprising the steps of:

dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals;

transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly a constant number of logic 1's and logic 0's; and

transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations.

Claim 10. The method of claim 9 wherein each group of unencoded signals includes an equal number of signals.

Claim 11. The method of claim 12 wherein the step of transforming each group of unencoded signals into a group of encoded signals comprises the step of transforming a group of unencoded signals into a group of encoded signals having a constant number of logic 1's and logic 0's using one of the selected at least one encoding scheme.

Claim 12. The method of claim 9 further comprising the step of selecting at least one encoding scheme prior to performing the step of transforming each group of unencoded signals into a group of encoded signals.

Claim 13. The method of claim 12 wherein the at least one encoding scheme transforms a group of unencoded signals to encoded signals such that a difference between a total number of unencoded data values and a total number of encoded data values is a fraction of the total number of unencoded data values.

Claim 14. The method of claim 9 further comprising the step of transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals.

Claim 15. An apparatus for inter-node communication, comprising:

means for dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals;

means for transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly an equal number of logic 1's and logic 0's; and

means for transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations.

Claim 16. The apparatus of claim 15 further comprising means for selecting at least one encoding scheme prior to transforming each group of unencoded signals into a group of encoded signals.

Claim 17. The apparatus of claim 16 wherein the at least one encoding scheme transforms a group of unencoded signals to encoded signals such that a difference between a total number of unencoded data values and a total number of encoded data values is a fraction of the total number of unencoded data values.

Claim 18. The apparatus of claim 16 wherein the means for transforming each group of unencoded signals into a group of encoded signals comprises means for transforming a group of unencoded signals into a group of encoded signals having an equal number of logic 1's and logic 0's using one of the selected at least one encoding scheme.

Claim 19. The apparatus of claim 17 wherein the means for transforming each group of unencoded signals into a group of encoded signals comprises means for transforming a group of six unencoded signals into a group of eight encoded signals.

Claim 20. The apparatus of claim 17 wherein the means for transforming each group of unencoded signals into a group of encoded signals comprises means for transforming a group of four unencoded signals into a group of six encoded signals.

Claim 21. The apparatus of claim 15 further comprising means for transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals.

Claim 22. An apparatus for inter-node communication, comprising:

means for dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals;

means for transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly a constant number of logic 1's and logic 0's; and

means for transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations.

Claim 23. The apparatus of claim 22 further comprising means for selecting at least one encoding scheme prior to transforming each group of unencoded signals into a group of encoded signals.

Claim 24. The apparatus of claim 23 wherein the at least one encoding scheme transforms a group of unencoded signals to encoded signals such that a difference between a total number of unencoded data values and a total number of encoded data values is a fraction of the total number of unencoded data values.

Claim 25. The apparatus of claim 23 wherein the means for transforming each group of unencoded signals into a group of encoded signals comprises means for transforming a group of unencoded signals into a group of encoded signals having a constant number of logic 1's and logic 0's using one of the selected at least one encoding scheme.

Claim 26. The apparatus of claim 22 further comprising means for transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals.

Claim 27. A computer-useable medium including computer program code for causing a computer to effect inter-node communication by performing the steps of:

dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals;

transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly an equal number of logic 1's and logic 0's; and

transmitting the groups of encoded signals to a second node; whereby the groups of encoded signals are transmitted with minimal current fluctuations.

Claim 28. The computer-useable medium of claim 27 further comprising computer program code for causing a computer to effect inter-node communication by performing the step of selecting at least one encoding scheme prior to transforming each group of unencoded signals into a group of encoded signals.

Claim 29. The computer-useable medium of claim 28 wherein the step of transforming each group of unencoded signals into a group of encoded signals comprises the step of transforming a group of unencoded signals into a group of encoded signals having an equal number of logic 1's and logic 0's using one of the selected at least one encoding scheme.

Claim 30. The computer-useable medium of claim 27 further comprising computer program code for causing a computer to effect inter-node communication by performing the step of transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals.

Claim 31. A computer-useable medium including computer program code for causing a computer to effect inter-node communication by performing the steps of:

dividing a plurality of unencoded signals into groups at a first node, wherein each group includes a portion of the unencoded signals;

transforming each group of unencoded signals into a group of encoded signals, wherein each group of encoded signals has nearly a constant number of logic 1's and logic 0's; and

transmitting the groups of encoded signals to a second node, whereby the groups of encoded signals are transmitted with minimal current fluctuations.

Claim 32. The computer-useable medium of claim 31 further comprising computer program code for causing a computer to effect inter-node communication by performing the step of selecting at least one encoding scheme prior to transforming each group of unencoded signals into a group of encoded signals.

Claim 33. The computer-useable medium of claim 32 wherein the step of transforming each group of unencoded signals into a group of encoded signals comprises the step of transforming a group of unencoded signals into a group of encoded signals having a constant number of logic 1's and logic 0's using one of the selected at least one encoding scheme.

Claim 34. The computer-useable medium of claim 31 further comprising computer program code for causing a computer to effect inter-node communication by performing the step of transforming the groups of encoded signals received by the second node back into the plurality of unencoded signals.